

IN THE CLAIMS

1 1. (Currently Amended) A metalworking fluid from heavy alkylate, comprising;

2 (a) residual fraction having C22 – C26 carbon atom of detergent class Alkyl Benzene in the

3 concentration range of ~~50 to 90~~ ~~40 to 85.68~~ weight percent of the metal working fluid, (b) at

4 least one sulfonate/oleate class emulsifier in the range of 10 to ~~[[40]]~~~~37.98~~ weight percent of the

5 metalworking fluid, (c) at least one additive pack having synergistic combination of various

6 additive components such as, at least one triglyceride vegetable oil type lubricity booster

7 component in the concentration range of 2-10 weight percent of metal working fluid, (d) ~~a~~ a

8 phenol/amine type antioxidant component ~~[[is]]~~ in the concentration range of ~~50-500~~ ppm, (e)

9 0.005-0.05 weight percent, a phenolic fungicide component in the concentration range of ~~50-~~

10 ~~500~~ ppm, (f) 0.005-0.05 weight percent, an organic sulfide/phosphosulfide extreme pressure

11 additive component in the concentration range of ~~50-500~~ ppm (g) ~~and 0.005-0.05 weight~~

12 ~~percent~~, a triazole/sulfonate type antirust component in the concentration range of ~~50-500~~ ppm,

13 (h) ~~a 0.005-0.05 weight percent~~, (d) an alcoholic co-surfactant component in the range of 1-10

14 weight percent of metal working fluid, ~~[[i]]~~ (e) a sulfonate/sulfate coupling agent in the range

15 of 0.5 to ~~[[10]]~~ 1.0 weight percent of metal working fluid, ~~[[j]]~~ (f) alkali earth metal salt

16 component in the range of ~~8-10~~ 0.5-1.0 weight percent of metal working fluid, that the

17 composition is useful as general purpose soluble cutting oil by obtaining emulsion by stirring it

18 in water 60 to 90 weight percent, which act as coolant/engineering aid in metalworking having

19 less toxicity than mineral oil and value-addition to heavy alkyl benzene, a waste product.

1 2. (Previously Presented) A composition as claimed in claim 1, wherein the residual

2 component of Alkyl Benzene is an oil component having heavy alkyl benzene of C22 – C26

3 carbon number, a heavy fraction by-product separated from detergent class alkyl benzene
4 during manufacture.

1 3. (Original) A composition as claimed in claim 1, wherein the emulsifier is selected from
2 the group consisting of heavy alkylate sodium sulfonates, sodium carboxylate, sodium oleate,
3 Triethylalonoamine oleate, Diethylalonoamine oleate or Dodecyl Toluene sodium sulfonate or
4 mixtures thereof.

1 4. (Original) A composition as claimed in claim 1, wherein the lubricity booster is a
2 vegetable oil selected from the group consisting of karanja oil, neem oil, rice-bran oil, castor
3 oil or mixtures thereof.

1 5. (Original) A composition as claimed in claim 1, wherein the antioxidant component is
2 selected from the group consisting of an alkyl phenol, aromatic amine, substituted alkyl
3 phenol selected from 2,6-ditertiary butyl phenol, 2,6-ditertiary p-cresol, Diphenylamine,
4 Tertiary butyl phenol amino tetrazole and 2,6-di octyl phenylene diamine.

1 6. (Original) A composition as claimed in claim 1, wherein the fungicide component is
2 a phenol or phenolic acid selected from the group consisting of o-cresol, phenol, m-cresol and
3 cresylic acid.

1 7. (Original) A composition as claimed in claim 1, wherein the extreme pressure
2 additive component is an organic sulfide or phosphosulfurized metal salt selected from the
3 group consisting of dibenzyl disulphide, sulfurized vegetable oil, phosphosulfurized decyl
4 oleate molybdate and phosphothio pentadecyl phenol molybdate.

1 8. (Original) A composition as claimed in claim 1, wherein the anti-rust component is
2 a triazole or sulfonate selected from the group consisting of 1H-benzotriazole, ditertiary
3 butylated 1H-Benzotriazole, calcium petroleum sulfonate and calcium heavy alkylate
4 sulfonate.

1 9. (Original) A composition as claimed in claim 1, wherein the co-surfactant
2 component is a alcohol selected from the group consisting of isopropanol, n-butanol, iso-
3 butanol, iso-amyl alcohol, 2 ethyl hexanol, mono & poly glycol such as di ethylene glycol and
4 tri ethylene glycol.

1 10. (Original) A composition as claimed in claim 1, wherein the coupling agent
2 component is a sulfonates (molecular weight less than 350) selected from the group consisting
3 of ligno sulfonate, petroleum sulfonate, sodium dodecyl benzene sulfonate and sodium lauryl
4 sulfate.

1 11. (Previously Presented) A composition as claimed in claim 1, wherein the alkali
2 component is an alkali and alkaline earth metal salt selected from the group consisting of
3 sodium carbonate, sodium hydrogen carbonate, calcium carbonate and calcium oxide.

1 12. (Previously Presented) A composition as claimed in claim 1, wherein the composition
2 is suitable for use as metal working fluid and general emulsion as admixture with water in
3 concentration range from 60 to 90 weight percent.

1 13. (Original) A process for preparing metalworking fluid as claimed in claim 1, said
2 process comprises the steps of;

- 3 a. removing of insoluble matter from the heavy alkylate followed by addition of
4 emulsifier and vegetable oil to obtain the mixture;
- 5 b. homogenising the resultant mixture at a temperature in the range of 30 to 100°C
6 for about one hour with stirring;
- 7 c. adding the antioxidant, fungicide, extreme pressure additives, anti trust
8 component, cosurfactant, coupling agent, alkali, followed by addition of water
9 to make up the quantity about 1kg, and
- 10 d. homogenizing the mixture for about 30 minutes, the pH of the solution was
11 adjusted to 7-9 by addition of sodium carbonate and cooling the resultant metal
12 working fluid at room temperature.

1 14. (Previously Presented) A process as claimed in claim 13, wherein the residual
2 component of Alkyl Benzene is a oil component having heavy alkyl benzene of C22 – C26
3 carbon number, a heavy fraction, by-product, separated from detergent class alkyl benzene
4 during manufacture.

1 15. (Previously Presented) A process as claimed in claim 13, wherein the
2 concentration of heavy alkyl benzene component is in the range of 40 to 85.68 weight percent
3 of the metalworking fluid.

1 16. (Original) A process as claimed in claim 13, wherein the emulsifier is selected from
2 the group consisting of heavy alkylate sodium sulfonates, sodium carboxylate, sodium oleate,
3 Triethalonoamine oleate, Diethalonoamine oleate or Dodecyl Toluene sodium sulfonate or
4 mixtures thereof.

1 17. (Previously Presented) A process as claimed in claim 13, wherein the concentration of
2 emulsifier component is in the range of 10 to 37.98 weight percent of the metalworking fluid.

1 18. (Original) A process as claimed in claim 13, wherein the vegetable oil component
2 for lubricity booster is selected from the group consisting of karanja oil, neem oil, rice-bran
3 oil, castor oil or mixtures thereof.

1 19. (Original) A process as claimed in claim 13, wherein the concentration of vegetable
2 oil component for lubricity boost is in the range of 2 to 10 weight percent of the metalworking
3 fluid.

1 20. (Original) A process as claimed in claim 13, wherein the antioxidant component is
2 selected from the group consisting of an alkyl phenol, aromatic amine, substituted alkyl
3 phenol selected from 2,6-ditertiary butyl phenol, 2,6-ditertiary p-cresol, Diphenylamine,
4 Tertiary butyl phenol amino tetrazole and 2,6-diethyl phenylene diamine.

1 21. (Previously Presented) A process as claimed in claim 13, wherein the
2 concentration of antioxidant component is in the range of 0.005 to 0.05 weight percent.

1 22. (Original) A process as claimed in claim 13, wherein the fungicide component is a
2 phenol or phenolic acid selected from the group consisting of o-cresol, phenol, m-cresol and
3 cresylic acid.

1 23. (Previously Presented) A process as claimed in claim 13, wherein the
2 concentration of fungicide component is in the range of 0.005 to 0.05 weight percent.

1 24. (Original) A process as claimed in claim 13, wherein the extreme pressure additive
2 component is an organic sulfide or phosphosulfurized metal salt selected from the group
3 consisting of dibenzyl disulphide, sulfurized vegetable oil, phosphosulfurized decyl oleate
4 molybdate and phosphothio pentadecyl phenol molybdate.

1 25. (Previously Presented) A process as claimed in claim 13, wherein the
2 concentration of extreme pressure additive component is in the range of 0.005 to 0.05 weight
3 percent.

1 26. (Original) A process as claimed in claim 13, wherein the anti-rust component is a
2 triazole or sulfonate selected from the group consisting of 1H-benzotriazole, ditertiary
3 butylated 1H-Benzotriazole, calcium petroleum sulfonate and calcium heavy alkylate sulfonate.

1 27. (Previously Presented) A process as claimed in claim 13, wherein the
2 concentration of ant-rust component is in the range of 0.005 to 0.05 weight percent.

1 28. (Original) A process as claimed in claim 13, wherein the co-surfactant component
2 is a alcohol selected from the group consisting of isopropanol, n-butanol, iso-butanol, iso-amyl
3 alcohol, 2 ethyl hexanol, mono & poly glycol such as di ethylene glycol and tri ethylene
4 glycol.

1 29. (Original) A process as claimed in claim 13, wherein the concentration of co-
2 surfactant component is in the range of 1 to 10 weight percent of the metalworking fluid.

1 30. (Previously Presented) A process as claimed in claim 13, wherein the coupling
2 agent component is a sulfonate (molecular weight less than 350) selected from the group

3 consisting of calcium ligno sulfonate, sodium petroleum sulfonate, sodium dodecyl benzene
4 sulfonate and sodium lauryl sulfate.

1 31. (Previously Presented) A process as claimed in claim 13, wherein the
2 concentration of coupling agent component is in the range of 0.5 to 1.0 weight percent of the
3 metalworking fluid.

1 32. (Previously Presented) A process as claimed in claim 13, wherein the alkali
2 component is an alkali and alkaline earth metal salt selected from the group consisting of
3 sodium carbonate, sodium hydrogen carbonate, calcium carbonate, calcium oxide.

1 33. (Previously Presented) A process as claimed in claim 13, wherein the
2 concentration of alkali component is in the range of 0.5 to 1.0 weight percent of the
3 metalworking fluid.

1 34. (Previously Presented) A metalworking fluid from heavy alkylate, comprising;
2 (a) residual fraction having C22 – C26 carbon atom of detergent class Alkyl Benzene in the
3 concentration range of 50 to 90 weight percent of the metal working fluid, (b) an emulsifier
4 selected from the group comprising heavy alkylate sodium sulfonates, sodium carboxylate,
5 sodium oleate, Triethalonoamine oleate, Diethalonoamine oleate or Dodecyl Toluene sodium
6 sulfonate or mixtures thereof, in the range of 10 to 37.98 w% of the metalworking fluid, (c) at
7 least one lubricity booster component in the concentration range of 2-10 percent of metal
8 working fluid, (d) an antioxidant component is in the concentration range of 50-500 ppm, (e) a
9 fungicide component in the concentration range of 50-500 ppm, (f) an extreme pressure additive
10 component in the concentration range of 50-500 ppm (g) an antirust component in the

11 concentration range of 50-500 ppm, (h) a co-surfactant component in the range of 1-10 weight
12 percent of metal working fluid, (i) a coupling agent in the range of 0.5 to 10 weight percent of
13 metal working fluid, (j) alkali component in the range of 8-10 weight percent of metal working
14 fluid.